

REMARKS

At the time of the third Office Action in the Second Request for Continued Examination (RCE), the application contained claims 1-9 and 21 of which claim 1 was the sole independent claim.

In that third Office Action, all of the prior rejections under 35 U.S.C. §103 were withdrawn. However, all of the claims were newly and finally rejected as follows:

1. Claims 1-3 and 21 were rejected as obvious under 35 USC §103(a) over RAVENSCROFT (5,702,418), previously cited, in view of FRANTZEN (6,168,618), newly cited;
2. Claims 5 and 9 were rejected as obvious under 35 U.S.C. §103(a) over RAVENSCROFT and FRANTZEN, and further in view of HAYASHI et al. (6,607,539), previously cited; and
3. Claims 6-8 were rejected as obvious under 35 USC §103(a) over RAVENSCROFT in view of FRANTZEN, and further in view of BARRY et al. (6,277,126) , previously cited.

Applicants wish to thank Examiner Sarah Webb for the courteous interview with applicants' undersigned counsel at the Patent and Trademark Office on July 27, 2006.

As discussed during the interview, the present invention is directed to a self expanding stent 20 having anchor members 52 adjacent its ends, and the stent is on a core wire 14. In the present invention, releaseable retaining rings 19 and 21 extend around the stent at the anchor members so as to compress the stent and the anchor members into gap 42 between the cylindrical members 16 and 18 to retain the stent on the core wire 14. Because of the presence of the retaining rings at the anchor members, it is possible in the present invention to selectively release the distal anchor members 52 as shown in FIG. 5, by first releasing the distal retaining ring 21. If it is discovered that the stent has been deployed at an incorrect location, the distal anchor members can be retracted simply by withdrawal of the deployed distal anchor members back into the outer catheter 3 to retract the distal anchor members into their original non-deployed position in the catheter 3. This permits the stent to be repositioned to the correct position in the vessel. This is possible because the proximal anchor

members 52 have been retained in the gap 42 between the tubular members 16 and 18 by the proximal retaining ring 19 which has not yet been released. Thus, the proximal anchor members 52 continue to hold the stent in place and prevent it from movement during the retraction and repositioning procedure. When repositioned, the catheter 3 is again withdrawn in the proximal direction so that the distal anchor members 52 and distal end of the stent will again redeploy as shown in FIG. 5.

When the stent has finally been deployed in its desired location in the vessel 58, the proximal retaining ring 19 is released as shown in FIG. 6 to permit the stent to fully expand, and the catheter, released retaining rings 19 and 21 and core wire are removed as shown in FIG. 7.

RAVENSCROFT discloses a stent delivery catheter that includes an elongated core member 14 with proximal and distal cylindrical rings 23 on the core member 17 to define a gap therebetween as best seen in FIGS. 2 and 3. Upon distal displacement of the rings 23, the distal face of the proximal ring engages the proximal surface of the overlapping twisted portion 20b of a self expanding stent 20 which is in the gap between the cylindrical rings 23 to urge distal displacement of the stent 20. Conversely, upon proximal displacement of the rings 23, the proximal face of the distal ring engages the distal surface of the overlapping twisted portion 20b of the stent which is in the gap between the cylindrical rings 23 to urge proximal displacement of the stent 20. The position has been taken by the Examiner that the twisted portions 20b constitute an anchor member as claimed. However, it is admitted in the last Office Action that RAVENSCROFT fails to disclose or suggest any actuatable retaining rings as in the present claimed invention to hold the self expanding stent 20 in its compressed condition once it has moved out of the sheath 24. The newly cited FRANTZEN has been relied upon for this aspect of the claimed invention.

FRANTZEN discloses a coiled stent 10 having binding straps 30 encircling the stent spaced longitudinally at several points along the length of the stent to compress the stent. In FRANTZEN, the binding straps 30 are electrolytically eroded so that they rupture sequentially to selectively control the expansion of the stent. The principal purposes of FRANTZEN in its use of the binding straps 30 is to minimize the risk for cocking or displacement of the stent during deployment (col. 1, lines 50-52) and to eliminate the exterior sheath of a delivery system to reduce the thickness of the

delivery system (col. 1, lines 53-59 and col. 2, lines 1-4). Once the binding straps 30 have been ruptured, the severed straps which are coupled to the catheter 21 may be removed with the catheter (col. 5, lines 48-50).

FRANTZEN contains no disclosure or suggestion whatsoever of recapture and redeployment of a stent, or that its binding straps cooperate in any manner with anchor members on a stent. For that matter FRANTZEN fails to disclose anchor members on the stent at all. Moreover, it is the express purpose of FRANTZEN to eliminate the exterior sheath around the stent which is necessary to perform the recapture and redeployment purpose of either the present invention or RAVENSCROFT. The purpose of the binding straps of FRANTZEN is entirely different than the recapture and redeployment purpose of either RAVENSCROFT or the present invention. Moreover, the avoidance of cocking of the stent during deployment which is the other purpose of the binding straps of FRANTZEN is unnecessary in either RAVENSCROFT or the present invention because both of the latter have the exterior sheath which permits sequential deployment of the stent without cocking. Accordingly, the modification of RAVENSCROFT by FRANTZEN is impermissible hindsight after having had the benefit of the disclosure of the present invention.

And, even if RAVENSCROFT was modified to include the binding straps of FRANTZEN, there is no disclosure or suggestion whatsoever in either of where to place the binding straps in RAVENSCROFT, i.e. whether to place them over the rings 23 or in the gaps between the rings and over the twisted portions 20b. Claim 1 specifically calls for the retaining rings to be disposed around the outer cylindrical surface of the stent "at said anchor member". It is respectfully submitted that if RAVENSCROFT could be modified to include the binding straps of FRANTZEN, that it is least likely that the straps would be placed in the gap and over the twisted portions 20b as would be required to meet the "at said anchor member" limitation of the claims, because such placement would likely overly compress and damage the stent. It is more likely that the binding straps would be placed over the rings 23 to obtain a more controlled combination, avoid stent damage and be able to replace the sheath as is one of the principal purposes of FRANTZEN. Thus, if the binding straps of FRANTZEN are placed over the rings 23 and not the overlying portions 20b in RAVENSCROFT,

the resulting modified combination would fail to meet the limitation in claim 1 that the retaining ring of the claimed invention is “at said anchor member”.

In addition, claim 1 has been amended herein to set forth that the anchor member is “at an end of said stent”. This together with the language that already appears in the claim that “said anchor member is interlocked within said gap and between said proximal cylindrical member and said distal cylindrical member” clearly defines over RAVENSCROFT in which the twisted portion 20b which has been relied upon to constitute an anchor member and which is positioned within the gap between the cylindrical rings 23 is clearly not “at an end of said stent” as currently set forth in claim 1. Instead it is intermediate the proximal and distal ends 58 and 59 of the stent. If the twisted portion was “at an end of said stent” as now claimed, it could not be in the gap between the rings 23 and function properly. It must be intermediate to the ends if it is to operate with the intent and purpose as contemplated by RAVENSCROFT, i.e. to permit recapture and redeployment of the stent at a different location because of the intertwined nature of the portions 20b. Thus, placement of the anchor members “at an end of said stent” would destroy the intent and purpose of RAVENSCROFT. Furthermore, RAVENSCROFT specifically discloses that the stent 20 extends well beyond the cylindrical rings in all of the figures of the drawing, and particularly Figs. 1, 4 and 5. Indeed, RAVENSCROFT states that the rings 23 which support the stent 20 are substantially spaced from the distal tip and that the distal portion of the stent 20 floats in a radial sense over the core 17 (See col. 5, lines 31-45). Moreover, the proximal and distal ends 58 and 59 of the RAVENSCROFT stent are well outside of the gap and beyond the rings 23. Accordingly, even if RAVENSCROFT was modified by the disclosure of FRANTZEN, a stent delivery system would not result which has “an anchor member placed...at an end of said stent”, and such anchor member at an end of the stent which “is interlocked within said gap and between said proximal cylindrical member and said distal cylindrical member” as set forth in the sole independent claim 1.


The aforementioned amendment to claim 1 was discussed during a telephone interview with Examiner Sarah Webb on August 23, 2006. During that interview, the Examiner suggested that applicant submit the amendment for her consideration and that an RCE would not be needed at this time for her to consider the amendment.

Proposed revisions to the drawings were previously submitted in a previous reply mailed December 5, 2005 and received by the Patent and Trademark Office on December 7, 2005. Those proposed revisions were indicated to be acceptable. Accordingly, formal Replacement Sheets containing those proposed revisions were submitted under a Submission of Replacement Drawings mailed April 12, 2006. However, there was no indication of acceptance of those formal Replacement Drawings in the last Office Action. Such indication of acceptance of those formal Replacement Drawings is requested.

For the above reasons, it is respectfully submitted that all of the claims remaining in the present application, claims 1-9 and 21, are in condition for allowance. Accordingly, favorable reconsideration and allowance are requested.

Respectfully submitted,

Dated: 8/24/06

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